# Managerial Accounting

## *using Excel® 97*

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# Managerial Accounting Using Excel® 97

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# Preface

*Managerial Accounting using Excel ® 97* can be used as a supplementary guide in conjunction with managerial accounting texts. It can also be used as a lab book by itself. Four chapters take the students from the basics of computers to designing a spreadsheet on their own.

## How to use this book:

The first two chapters of this book are written with the novice in mind. Students do not need to have any experience working with spreadsheets in order to use this book. There are questions at the end of both Chapters One and Two to reinforce what has been learned.

**Chapter One** covers a brief overview of how computers work. It takes the student through the basic components of a computer—the hardware and software. If students are already familiar with the way computers work and can differentiate between a central processing unit (CPU) and an operating system (OS), then they may want to skip this chapter. However, Chapter One also introduces the idea that businesses can use the Internet efficiently and effectively for tasks, such as sending a spreadsheet across the country in a matter of seconds.

**Chapter Two** contains a demonstration problem that takes the student through the steps of setting up a spreadsheet for various levels of production. The chapter starts out explaining what a spreadsheet is and what kind of data can be entered. The demonstration problem takes students all the way from entering labels and formulas to the formatting section which involves placing decimal points and dollar signs, underlining, centering, selecting different font sizes, and adding color to the spreadsheet.

There are also instructions regarding printing, as well as inserting and deleting rows and columns, so that it will fit nicely on as few pages as possible. Chapter Two also guides students through setting up a chart. This includes selecting the relevant data and applying the appropriate kind of chart type. Additionally, this chapter covers information on how to interpret the charts that have been created.

Although some students may feel they can skip this chapter, most students aren't completely acquainted with developing charts, printing specific areas, and setting up "What-If" formulas. It is **highly recommended** that this chapter should be required for all students, because it will help the students with the rest of the problems in Chapters Three and Four. Chapter Two also explains the importance and basics of saving files.

There are two appendices in Chapter Two. Appendix One includes some of the new buttons in Excel '97 that relate to Web links. It will be somewhat common in the near future to see spreadsheets with URLs in them. Appendix Two explains how to copy formulas. The reason that the topic of copying formulas is covered in an appendix is that

although being able to copy formulas is an important skill for students to learn, it is more important for students to become familiar with entering formulas for themselves.

**Chapter Three** shows the student how to fill in partially completed templates. The chapter starts off with a sample problem explaining in detail how to enter formulas, how to split windows, and the reason for the three different sections. The sample problem is critical for students to do because it gives them practice in entering formulas. Students can check to see if the formulas are correct because they are given the solution in the template format and formula format.

**Chapter Four** requires the student to create a spreadsheet from scratch based on the information given in the problem. Again, there is a detailed sample problem to show how a student can approach a problem, design an empty spreadsheet, and fill it with meaningful data. The sample in Chapter Four is comprised of two different kinds of income statements and a section about finding the break-even point.

We take the students through setting up the spreadsheet for the input and output sections and part of the computation section to get them started. The students should then be encouraged to finish by themselves and check their answer against the solution that is provided.

The sample problems in both Chapters Three and Four are highly recommended for the students to complete, because they will give students some experience in solving the problems in those chapters.

To use the disk accompanying this book, your computer should have the following system requirements:

# Minimum System Requirements

CPU of 486 or better
8 Megs of RAM (16 recommended)
Excel 5.0
Windows '95 for Excel '97 or Windows 3.1 for Excel 5.0

# ACKNOWLEDGMENTS

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# Chapter One
# The Computer

**Learning objectives**

*After reading this chapter, you should understand:*

1. The role computers play in our lives.
2. The difference between hardware and software.
3. The basic features and commands of windows.

## COMPUTERS IN OUR LIVES

Computers are now a part of our everyday personal and professional lives. They continue to become increasingly important in all activities—either directly or indirectly. Therefore, this may create a certain amount of anxiety and worry. For example, one might be overly concerned about losing information that's stored on a computer. Additionally, one might be concerned that, because of a computer "glitch," the electricity or phone system will go out in vast areas of town, thus possibly cutting off vital services to an institution such as a hospital or cutting off communications with one another. Of course this can be worrisome, but there are backup systems available that can be relied on in order to prevent a minor glitch from turning into a major disaster. A certain amount of precautions can be taken—such as backing up data and having a backup system that will take over if the primary system fails. It is strongly recommended that data be backed up every two to five minutes while working. It is quite frustrating or disconcerting to work on a problem for a long time, only to have the computer crash or freeze up just before printing out the material. Backing up and saving data often helps ameliorate and/or avert disasters.

Computers have also enhanced our lives. In a myriad of ways, they have had a profound effect and have been very beneficial, both personally and professionally. Businesses are harvesting the benefits from the power of computers. Staff members are much more productive and attain a higher degree of accuracy, as the computer handles most of the drudgery of basic calculations. Therefore, in certain professions, computers have become indispensable in a variety of ways.

Accountants are information providers. They provide financial and managerial information by gathering the data, analyzing it, and putting it into meaningful format. They then present it, usually with recommendations, to upper management for making decisions. That is the basics of *what* will be presented in this book. Additionally, *how* the information is presented is also important as it can greatly impact a decision. For example, in order to emphasize a point, the use of a larger and bolder font will surely catch the attention of the reader. To that extent, this book details how to use an array of formatting features when organizing and arranging a spreadsheet.

With the advent of the internet, accountants now can put information in a spreadsheet and send it down the hall, across the town, anywhere in the country, or around the world in a matter of just a few clicks. In an information driven economy, such as ours is becoming, information is used as currency, so it is important – *critical in fact*--that the information is accurate, relevant, and ***timely***. The "name of the game" is getting accurate and relevant information as fast as possible to the decision-makers. In the old days, wars were won or lost based on how fast the information was passed along to headquarters. Today, the battles are being fought on economic fronts and the faster a company has good information, the quicker it will be able to react to the markets.

The internet has been a boon to business. Because the internet has collapsed time and distance, certain costs are greatly reduced. For example, there may be times when the

accounting department in California may have to update a capital budget spreadsheet and send it to the managers in New York for a meeting that will occur in a couple of hours. (If needed, audio notes, or quick movies can be included in our spreadsheets.) It is no longer necessary to use expensive express mail delivery systems for that purpose. Sending spreadsheets has become *just a click away.* To that extent, computers have made our world a smaller place. We have truly become an electronic global village and this is true by virtue of the fact that we can go anywhere in the world in a matter of seconds on our computers. Through the Internet, we can travel to a vast array of places without leaving our homes or offices. Similarly, if we want to direct a manager's attention to a certain web site, we can also insert web links in our spreadsheets. For example inserting a URL address such as this will lead you to FASB exposure drafts - http://www.rutgers.edu/Accounting/raw/fasb/draft/draftpg.html.

## HARDWARE AND SOFTWARE – The Basics

The two parts of a computer system are the hardware and the software. Understanding this division is important because the hardware operates on the direction of the software.

Hardware is the physical part of the computer, which includes the keyboard, monitor, computer box, printer, cables, microphones, scanners, speakers, and any other miscellaneous equipment. Basically, if you can touch it, it's hardware.

The software is a set of instructions that allows the computer [hardware] to carry out its work. In other words, the software tells the hardware what to do. An operating system, such as Windows 95 or MS DOS, is software that directs the hardware; i.e., sends letters and diagrams to the screen and controls the disk drives, keyboard, printer, and all other hardware. With the current advanced level of operating systems like Windows 95, there is little need to worry about how it controls the computer system.

Application software consists of programs that allow you to do work or play, whatever the case may be. Excel is an example of application software. It is an advanced program that takes the instructions given it, through an input device like a keyboard (hardware) and provides answers, or results, via an output device like the monitor (hardware). All word processors, databases, spreadsheets, and games are among the programs in the category of application software. Another method of inputting information is speaking through a microphone. Yes, we can talk to computers now and they will record the information just as if it were being typed in.

### HARDWARE

#### Central Processing Unit

The Central Processing Unit (CPU) is one of the most important parts of computer hardware--it is the heart of the computer system. There is a computer chip that makes all decisions and does all computations for the entire system. The CPU only understands machine language written in 1s and 0s.

The CPU chip is located in the box commonly referred to as the "computer". It can be anything from an older 386 chip to a newer 400 MHz Pentium II. The oldest IBM-PC CPU chip, which came in the original machines when they were first introduced in 1981, was the 8088. The next advancement in the evolution of microcomputers was the 286 chip and was much faster in processing data. Next came the 386 and then the 486. As the programs have become larger and more sophisticated, they have required a faster chip – i.e. a Pentium.

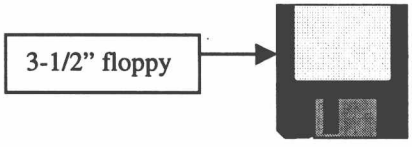
The megahertz (MHz) rating indicates the speed at which data moves inside the computer. Computer speeds range from very slow, 25MHz, to very fast 400MHz or more. This rating not only determines how fast the computer will accomplish tasks in the system but also indicates how fast programs will operate.

### Memory - RAM VS. ROM

There are two types of memory, random-access memory (RAM) and read-only memory (ROM). Computer end users, such as you, are more concerned with RAM.
RAM is what you are working with when the computer is turned on, is measured in bytes. The more of this memory you have, the more work you can do. This memory, however, is 'volatile' meaning it loses all data when the computer is turned off unless the data has been saved. RAM is not stable and not for long-term storage of a program's data. The long-term storage is accomplished through storing the data on other medium—e.g. tapes or computer disks.

ROM is what computer engineers build into the computer and it is permanent. ROM chips contain special instructions for the computer. The end user does not do anything with ROM.

### DISK DRIVES




### Floppy Disk Drive

The floppy disk is a plastic device that is square and has various openings that allow a floppy disk drive to record and play back programs and data. The platter inside the square envelope is the same shape as a vinyl record but stores data on the disk in the same magnetic format as a cassette tape. Floppy disks come in a 3-1/2" size. When personal computers came out, the 5-1/4" disk is was available. However, they were bendable, making them fairly easy to destroy, and didn't have much storage space. The 5-1/4" floppy disk is becoming pretty much extinct. It has been replaced with the regular 3-1/2" disks as well as zip disks, tapes, and compact disks. The 3-1/2" disk can store either 740,000 characters or 1,440,000 characters.

Floppy disks are inexpensive and allow easy transfer of data between computers. To ensure successful use of floppy disks there are several details you should be aware of. Since data is recorded on the disk magnetically, any stray magnetic field can erase or damage data on the disks. Never place a disk near a large electrical motor, on top of color televisions, near a magnet (no matter how large or small) or similar items. Do not spill any liquid or wet substance on the disk. However, the 3-1/2" disk comes in a sturdy plastic sleeve that makes damaging the internal surface much more difficult.

When inserting 3-1/2" disks, the metal shutter should be toward the back of the computer. Push the disk into the drive until it drops down.

**Hard Disk Drive**

While floppy disks are very important in the use of computers, they are not effective for long-term use for the storage of programs and data. They have a small capacity--360K to 1.44MB or 2MB--and are quite slow in finding and transferring data. These problems mean floppy disks are best suitable for back-up storage or transfer of data between computers. Therefore, a hard disk should be used as a computer's main storage device.

A hard disk stores a large amount of data and is a somewhat permanent device that usually is not removed from the computer except to trade up for more storage. This device uses metal disks that revolve very fast and can efficiently store and retrieve programs and data. Hard disks are available from about 200 Megabytes to over 10 Gigabytes. As computer applications get bigger and bigger there is a growing need for more hard drive storage space on the computer as well as more RAM, on the computer.

**Zip drives**

A zip drive compresses a lot of data into a very small storage area. The disks for a zip drive are special 3-1/2" disks that are a little thicker and cannot be used in a regular floppy drive. The zip drive has been a real boon to people who have to store a lot of data and carry it around with them. For example, a 3-1/2" zip disk can store one hundred megabytes of information. Compare that to a regular 3-1/2" disk that stores only 1.44 Megs of information.

**CD-ROM's – compact disk drives**


Compact disk drives used to be read only hence the term CD-ROM. Very recently, however, the technology to write on compact disks has become economically available to more consumers. Now you can write on your on CD's. Writeable CD's are called CD-R's or CD-RW. CD's simply work the way they do on your stereo, simply drop them in to their holder and close the door. Usually, the computer will find the CD and start running it.

### DVD – digital versatile disk drive

The digital versatile disk drive may eventually replace all the CD-ROM drives. This stores and incredible amount of information – up to 17 gigabytes! That's about a two hour movie. With a DVD drive and windows 98, a favorite music video or movie can be played while you are working at the computer. However, as parents with a son and daughter at the University of California, the authors do not recommend playing a DVD movie while researching or writing a paper—i.e., the student may get distracted from the focus of the assignment.

## MONITORS

A monitor is a hardware output device. The monitor is like a television screen that allows you to communicate with the computer. It looks similar to a television set and, in fact with the right hardware and software, can be used as a television. A display adapter is what might be referred to as the video card. This is what tells the monitor what to display, in what colors and what resolution. In the old days, there were monochrome adapters that just showed black and white. Now there are several other types of display adapters for monitors.

| | |
|---|---|
| CGA | Color Graphics Adapter - a low-quality color system that is inexpensive. This is not used much today, if at all. |
| EGA | Enhanced Graphics Adapter - a higher-quality color system that is easy to view and capable of generating a wide variety of colors. |
| VGA | Video Graphics Array - high quality color standard that is used for high quality graphics. There are also now SuperVGA monitors. SuperVGA is probably what is in your computer right now. |

## KEYBOARDS

A keyboard is a hardware-input device. Keyboards turn our keystrokes into the required signals that the computer can understand. The keyboards, and in some cases microphones, are what enable us to use computers. In the Excel tutorial (Chapter Two) we will take you on a tour of the keyboard and explain the different keys and their functions.

Keyboards are available in the configurations that are similar to a typewriter except the 101-key keyboard has duplicate keys that make operation easier. Some newer keyboards have 104 and 107 keys.

## SOFTWARE

The major components of a computer systems hardware have been described. By themselves the pieces of hardware are less than worthless. The various pieces of hardware must work together in order to carry out a task. This coordination of tasks is done by software. The two main types of software are operating and application.

**Operating System**

The operating system is a series of instructions that coordinates the lower level of the system. It tells the computer what to do and when to do it. In other words, the operating system is the 'brains' of the outfit, as it tells the computer when to start the disks, when to send a message to the screen, when to start printing, and how to keep track of data in the system.

There are a number of operating systems available--for example, OS/2, PC DOS, MS DOS, LINUX, UNIX, Macintosh, Windows 95, and more recently Windows 98. This book can be used with Windows 95 and Windows 98 operating systems. (Note: While Windows 95 is considered its own operating system, it still sits on top of DOS.)

Visually, there is not much difference between Windows 95 and Windows 98 (except that you can make the screens on Windows 98 look more like a web page if you want). There was a bigger difference between Windows 3.1 and Windows 95, both visually and internally.

**Applications Software**

The operating system (software) coordinates the lower level hardware systems while applications software are the programs you can see and use. Excel is an example of an application program.

The hierarchy of hardware and software:

User ——————————→ You

Application Program ——————→ Excel or Word

Operating Systems——————→ Windows 95 or MS DOS

Hardware——————————→ Computer (monitor, keyboard, drives, etc.)

Notice how the operating system sits between the application program and the hardware. It is basically acting like a language interpreter.